

Case Report: Follicular Adenoma in a Thyroglossal Duct Remnant Arising Entirely within the Hyoid Bone

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Abstract

Introduction: We describe here the first reported case of a follicular adenoma arising from a thyroglossal duct remnant within the hyoid bone in Singapore. **Clinical Picture:** A 32-year-old woman presented with an asymptomatic lump in the anterior midline of her neck of three months' duration. CT scan showed an expansile lesion localised to the medulla of the body of the hyoid. **Treatment:** A well-defined intrahyoidal mass was found at surgery. Histology revealed a follicular adenoma arising from maldescended thyroid tissue within the hyoid bone. **Outcome:** Recovery was uneventful. **Conclusion:** It is important to consider thyroglossal duct carcinomas as a differential diagnosis when evaluating anterior neck lumps.

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Key words: Intrahyoid location, Thyroglossal duct carcinomas

Introduction

Thyroglossal duct remnant is one of the most common lesions of the anterior midline neck. It occurs in 7% of adults¹ and carcinoma is found in less than 1%. The majorities are papillary and mixed papillary-follicular²⁻⁴ carcinomas, with follicular and squamous cell carcinomas occurring far less frequently. We report here a patient with follicular adenoma arising out of a thyroglossal duct remnant entirely within the hyoid bone.

Case Report

A 32-year-old woman was referred by her primary physician for an asymptomatic lump in the anterior midline neck of three months' duration. Physical examination revealed a firm 2-cm nodule arising at the level of the hyoid bone that moved on swallowing. The lump demonstrated deep fixity to the hyoid bone. The overlying skin was normal. The thyroid gland was not palpable nor was there any cervical lymphadenopathy. The rest of the head and neck examination was otherwise normal.

Ultrasonography of the neck revealed a normal thyroid gland and an echogenic nodule in the midline. This contained small foci of calcifications and had similar echo texture to

the thyroid gland. A computed tomographic (CT) scan of the neck showed an expansile lesion localised to the medulla of the body of the hyoid bone (Fig. 1). The cortex surrounding the lesion was intact. No soft tissue oedema or invasion was seen. Fine needle aspiration cytology of the lump contained mostly blood and inflammatory cells.

The patient was taken to surgery. A transverse incision over the thyroid cartilage was designed with a view for a horizontal partial laryngectomy should the lesion be malignant and more extensive than seen on the CT scan (Fig. 2). During the dissection, it was clear that the lesion was confined only to the medullary cavity of the hyoid bone (Fig. 3). The muscular attachments were easily freed and the expanded portion of the bone excised with good margins. The specimen was then submitted for pathological examination. Intraoperatively, the thyroid gland was normal in appearance and location.

Pathology

The macroscopic specimen comprised the hyoid bone with attached skeletal muscle and fat measuring 5 x 4 x 3 cm. There was a firm, circumscribed, light brownish, 2-cm tumour expanding the hyoid bone. Microscopically, thyroid

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tissue was found within the hyoid bone, composed of a fairly circumscribed proliferation of macro and microfollicles lined by flattened columnar to cuboidal epithelium, containing scalloped colloid (Fig. 4). No papillae, psammoma bodies or nuclear abnormalities such as pseudoinclusions or grooves were identified. No vascular invasion was seen. Some thyroid tissue was noted outside the bone, abutting the skeletal muscle and showing evidence of thyroiditis (Fig. 5). Adjacent to the hyoid bone was a cyst lined by respiratory type epithelium with a few thyroid follicles in the wall, indicating a thyroglossal duct cyst (Fig. 6). The pathological conclusion was that of a follicular adenoma arising from maldescended thyroid tissue in the hyoid bone, associated with thyroglossal remnants and thyroiditis in the non-neoplastic thyroid tissue.



Fig. 1. Computed tomography of the neck.

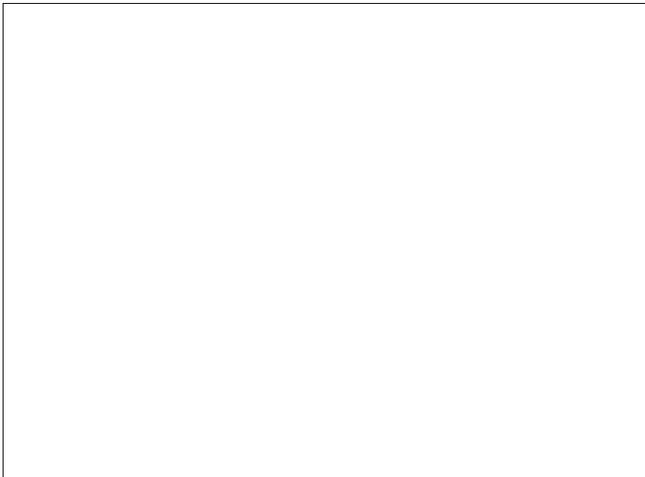


Fig. 2. Preoperative view of the anterior midline neck lump.



Fig. 3. Intraoperative specimen.



Fig. 4. Intrahyoid follicular adenoma expanding the hyoid bone (arrow). (Haematoxylin & eosin, original magnification x40)

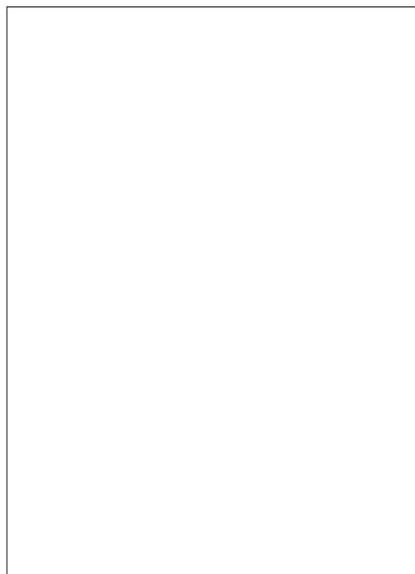


Fig. 5. Thyroiditis in non-neoplastic maldescended thyroid, with a lymphoid follicle in the interstitium (arrow). (Haematoxylin & eosin, original magnification x40)

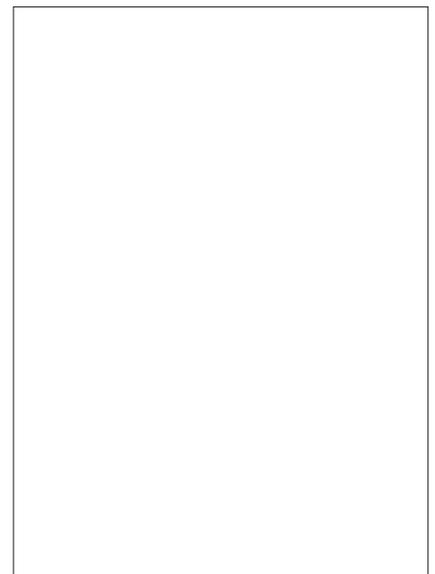


Fig. 6. Thyroglossal cyst remnants adjacent to the hyoid bone. (Haematoxylin & eosin, original magnification x20)

Discussion

Thyroglossal duct remnants originate when the duct fails to involute completely. It will be recalled that the thyroid begins as a median central downgrowth from the pharynx at the junction of the first and second branchial arches. This site is marked in the adult by a blind pit, the forearm caecum, located in the midline at the junction of the anterior two-thirds and posterior one-third of the tongue. The thyroid bud grows downwards in the midline through the region in which the hyoid bone later develops, and bifurcates to form the lateral lobes and isthmus of the normal gland. The hyoid bone later grows in from both sides and fuses in the midline. This mode of development accounts for its variable relation to the thyroglossal tract, which may be either anterior or posterior, or even in the body of the hyoid bone.

The most frequent sites to find thyroglossal duct remnants are approximately halfway between the base of tongue and the sternal notch, at the level of the hyoid bone (61%); suprahyoid (24%), infrahyoid (15%), suprasternal (13%), intralingual (1% to 2%) while retrohyoid and intrahyoid locations are very rare.^{5,6}

The epithelial lining is most often a pseudostratified, ciliated, columnar epithelium of the respiratory type (54%); a stratified squamous (34%), transitional (6%), or cuboidal (6%) epithelia may occur.⁷ It is important to emphasize that thyroglossal duct remnants as well as ectopic thyroid may undergo any of the pathologic changes to which a normal thyroid gland in its normal anatomic location is subject—colloid swelling, hyperplasia, neoplasia, and so on. In our literature search, to the best of our knowledge, we have not come across any report of an intrahyoid thyroglossal duct adenoma.

Thyroglossal duct remnants or cysts may present at any age but most often in the first or second decades of life, usually as an anterior neck swelling closely associated with the hyoid bone.⁵ It may suddenly enlarge, usually with an upper respiratory tract infection, which may occlude the drainage of the cyst via the forearm caecum. Acute inflammation is common, occurring in 33% of cases and may be secondary to spontaneous drainage due to infection or iatrogenic causes.⁵

The differential diagnoses of midline neck masses include cervical lymphadenopathy (inflammatory or neoplastic), ectopic thyroid, cystic hygroma, branchial cyst, lipoma, dermoid cyst and sebaceous cyst.

Several imaging modalities are useful in the evaluation of patients with suspected thyroglossal duct remnants. Ultrasound may help to distinguish solid from cystic neck

lesions and to demonstrate the presence of the thyroid gland in the normal pretracheal position. CT is useful for accurately evaluating the size and anatomic relations of the mass to surrounding structures. CT has been shown to depict thyroglossal duct cysts as well-marginated non-enhancing masses, with a density of usually less than 25 Hounsfield units.^{8,9} The differential diagnosis of an expansile lesion occurring within the substance of the hyoid bone includes chondrosarcoma, plasmacytoma, aneurysmal bone cyst, giant cell tumour, osteonecrosis after radiation therapy, chondroma, metastasis and intrahyoid thyroglossal cyst/remnant.

In addition, thyroid scintigraphy with ^{99m}Tc-pertechnetate is a well-established imaging modality that is particularly useful in demonstrating the site and presence of functioning thyroid tissue in neck masses and the relation to the normal thyroid gland.

The patient's postoperative recovery was uneventful and she was subsequently discharged well on the fifth day post-surgery.

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